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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,803	11/21/2003	Himanshu Pokharna	42P17130	3345
8791	7590	06/09/2005	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			EDWARDS, ANTHONY Q	
12400 WILSHIRE BOULEVARD			ART UNIT	
SEVENTH FLOOR			PAPER NUMBER	
LOS ANGELES, CA 90025-1030			2835	

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/719,803	Applicant(s) POKHARNA ET AL.	
	Examiner Anthony Q. Edwards	Art Unit 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2005.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14-20 and 22-24 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-11, 14-20 and 22-24 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 15 recites “a heat generating component including a display circuitry and a CPU” as well as “an evaporator coupled to the component.” The claim does not particularly point out, however, which of the two components is actually coupled to the evaporator (i.e., the display circuitry or the CPU). Claims 16-19 depend from claim 15 and are rejected for at least the same reasons.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-7, 9, 14-17, 19, 20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,510,052 to Ishikawa et al. (“Ishikawa” hereinafter) in view U.S. Patent Application Publication No. 2004/0223299 to Ghosh. Referring to claim 1 and the corresponding method claim 9, Ishikawa discloses a notebook computer system, comprising a first heat sink (32) to passively dissipate heat from the notebook computer system, a sensor system (91a, 91b) to monitor a temperature of a plurality of components (see Fig. 3), wherein the

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components include a CPU (12), and a second heat sink (71) coupled to the first heat sink, wherein the second heat sink is enabled if the notebook computer system detects that at least one the components of the notebook computer system exceeds a predefined temperature threshold. See Figs. 3, 11 and 12, as well as col. 12, lines 57-65. Ishikawa does not specifically teach monitoring a display circuitry component.

Ghosh teaches providing a sensor system that monitors the temperature of components in a notebook or portable computer, including a display circuitry component (see Figs. 8 and 9, as well as paragraphs 0020 and 0039).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the sensor system of Ishikawa to include monitoring display circuitry, as taught by Ghosh, since the device of Ghosh would insure that the proper temperature is maintained in the display circuitry of Ishikawa, which will enable optimum performance for the display unit in the notebook computer.

Referring to claim 2, Ishikawa in view of Ghosh disclose the notebook computer system as claimed, except for the first heat sink dissipating approximately 2-20 watts of power. It has been held that it is not inventive to discover the optimum or workable ranges by routine experiment (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

It would have been obvious; therefore, to one of ordinary skill in the art at the time of the invention to limit the amount of heat dissipated from the first heat sink of Ishikawa, as modified, to within 2-20 watts of power, since monitoring and controlling the amount of heat dissipated

from the first heat sink provides a benchmark for monitoring and controlling thermal management of the entire system.

Referring to claim 4, Ishikawa in view of Ghosh disclose a notebook computer system, wherein the first heat sink (32) passively dissipates heat through a display (3). See col. 12, lines 37-44 of Ishikawa.

Referring to claims 5 and 6, Ishikawa in view of Ghosh disclose a notebook computer system, wherein the display (3) comprises a first plate (43a) coupled to a second plate (43b), wherein a working fluid for heat transfer is distributed across the surface area of the display through grooves (45) between the first plate and the second plate, and wherein the grooves (45) between the first plate and second plate has a plurality of turns (44) to improve temperature spreading, respectively. See Fig. 3 and col. 12, lines 37-41 of Ishikawa.

Referring to claim 7, Ishikawa in view of Ghosh disclose the notebook computer system as claimed, except for both the first and the second plates being approximately one millimeter thick. It has been held that “in considering the disclosure of the reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom” (see MPEP 2144.01; *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make both the first and second plates of Ishikawa, as modified, approximately one millimeter thick, since such thin plates (e.g., approximately one millimeter thick) would provide sufficient structural support for the circulating paths or grooves of the heat sink in the display, while also providing the structure in a light weight form.

Referring to claim 14, Ishikawa in view of Ghosh disclose a method, wherein the display (3) comprises a screen (18), inherently compromises circuitry, and comprises a cover (57), wherein heat passively dissipates through the display cover. See col. 12, lines 45-50 Ishikawa.

Referring to claim 15, as best understood by the Examiner, Ishikawa in view of Ghosh disclose a thermal management system of a notebook computer system, comprising a heat generating component including a display circuitry (see Fig. 8 of Ghosh) and a CPU (see Fig. 3 of Ishikawa), an evaporator (77) coupled to the component to remove heat from the component, wherein the heat is transported via a working fluid, and a pump (76) coupled to the evaporator to transport the working fluid from the evaporator (77) to a heat exchanger (31), wherein a fan (90) removes heat from the working fluid in the heat exchanger if at least one of the heat generating components exceed a predefined temperature threshold, and a display (3) coupled to the evaporator (77), wherein the working fluid is spread across the surface area of the display to dissipate heat. See Figs. 3 and 11, as well as col. 11, lines 1-53 of Ishikawa.

Referring to claim 16, Ishikawa in view of Ghosh disclose the notebook computer system as claimed, except for the first heat sink dissipating approximately 2-20 watts of power. However, as indicated above, it has been held that it is not inventive to discover the optimum or workable ranges by routine experiment (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

Referring to claim 17, Ishikawa in view of Ghosh disclose a thermal management system, further comprising a hinge (52) to transfer the working fluid from the heat exchanger to the display, wherein the hinge comprises flexible tubing. See Fig. 4 and col. 9, lines 57-62 of Ishikawa.

Referring to claim 19, Ishikawa in view of Ghosh disclose a thermal management system, wherein the working fluid comprises water. See col. 9, lines 53-56 of Ishikawa.

Referring to claim 20, Ishikawa in view of Ghosh discloses a thermal management system, comprising means for cooling a notebook computer passively (32), means for detecting a temperature of a plurality of notebook computer system components, wherein the components include a display circuitry and a CPU (see Figs. 8 and 9 of Ghosh), and means for cooling the notebook computer system actively if a component of the computer system exceeds a threshold temperature. See Figs 3, 11 and 12, as well as col. 12, lines 57-65 of Ishikawa.

Referring to claim 22, Ishikawa in view of Ghosh inherently disclose a thermal management system, further comprising means for increasing a life of a battery of the notebook computer system, since the fan control according to Fig. 12 of Ishikawa would increase the life of the battery.

Referring to claim 23, Ishikawa in view of Ghosh inherently disclose a thermal management system, further comprising means for spreading a working fluid temperature across a display (3) of the notebook computer system. See col. 12, lines 37-44 of Ishikawa.

Referring to claim 24, Ishikawa in view of Ghosh inherently disclose a thermal management system, further comprising means for pumping (76) a working fluid through the notebook computer system. See col. 11, lines 11-53 of Ishikawa.

Claims 3, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Ghosh, and further in view of U.S. Patent Application Publication No. US2004/0095721 to Ellsworth, Jr. et al. ("Ellsworth" hereinafter). Referring to claim 3, Ishikawa, as modified, discloses the invention as claimed, except for the second heat sink being

enabled if the notebook computer system exceeds a predefined power consumption threshold.

Ellsworth teaches providing an auxiliary heat removal system (210) or (310), which is enabled when predefined power consumption of a heat source (240) is reached. See Fig. 2 and paragraph 0032, second column of the page 3.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the system of Ishikawa in view of Ghosh with a heat sink or heat removal system that is enabled when predefined power consumption of a component is reached, as taught by Ellsworth, since the device of Ellsworth would increase the coefficient of performance of the cooling system of Ishikawa in view of Ghosh by simply monitoring both the power and the temperature output of the heat producing component.

Referring to claim 10, Ishikawa, as modified, in view of Ellsworth disclose a method further comprising monitoring a power consumption of a central processing unit. See col. 7, lines 36-38 of Ishikawa.

Referring to claim 11, Ishikawa, as modified, in of Ellsworth disclose a method further comprising disabling the fan (310) if the power consumption of the CPU is less than a predefined power threshold. See Fig. 2 and paragraph 0032, second column of the page 3 of Ellsworth.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Ghosh, and further in view of U.S. Patent No. 6,181,555 to Haley et al. Ishikawa, as modified, discloses the invention as claimed, except for further comprising an insulation layer to protect display circuitry from heat emanating from the first plate and the second plate. Haley et al. teach providing an insulation layer (102), between an LCD panel (101) and a thermo-plate or



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heat sink (104) to protect display circuitry in the LCD panel (101). See Fig. 2 and col. 3, lines 12-20 of Haley et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the notebook computer system of Ishikawa, as modified, with an insulation layer between the LCD panel and the combined first sink, as taught by Haley et al., since the device of Haley et al. would provide protection for sensitive components in the display of Ishikawa, as modified, against heat dissipating from the portion of the first heat sink facing the display.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Ghosh, and further in view of U.S. Patent No. 4,688,147 to Ono. Ishikawa, as modified, discloses the invention as claimed, except for wherein the hinge comprises metal tubing to provide a hermetic seal. Ono teaches providing a flexible tube for a cooling device, having both an exterior metal bellows (5) and an interior surface wall 6c. See Fig. 3, as well as col. 3, lines 9-20.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the hinge having a flexible tubing of Ishikawa to include an exterior metal bellows, as taught by Ono, since the device of Ono would provide the hinge of Ishikawa, as modified, with an exterior surface that prolongs the lifespan of the hinge, and also provides for an hermetic seal in case the flexible tubing degrades prematurely.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-11, 14-20 and 22-24 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Q. Edwards whose telephone number is 571-272-2042. The examiner can normally be reached on M-F (7:30-3:00) First Friday Off.

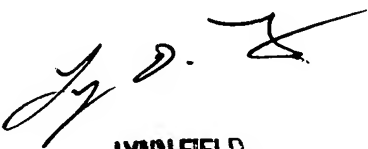
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 2, 2005

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**SUPERVISORY PATENT**  
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